

令和7年度  
東北医科薬科大学 大学院 医学研究科  
医学専攻博士課程  
一般・社会人入学試験（一次募集）  
**【語学（英語）】**

注意事項

1. 試験中に問題冊子の印刷不鮮明、ページの落丁・乱丁および解答用紙の汚れ等に気づいた場合は、手を挙げて知らせること。
2. 不正行為に対しては厳正に対処します。
3. 解答終了後は本冊子を置いておくこと。

受験番号：

氏名：

## 問題 1

次の英文の内容に関して、(1) から (4) までの質問に対して解答用紙の所定欄に解答しなさい。(1), (2), (4)の質問については1つ選択枝を選びなさい。

Bunny is a dog who is famous for seeming to communicate with her owner through buttons on a soundboard on the ground. When pushed, the buttons say words like "outside," "play" and "ouch." Bunny has this famous video where she pushes the button for "ouch" then the owner asks, "Where's your ouch?" After hitting a couple other buttons, Bunny eventually pushes the button for "paw." There does happen to be a piece of wood in her paw that was causing her pain. This kind of interaction seems like it could be true communication — but before scientists can answer that question, they have to take a step back and answer another question first: Can the dogs even understand the words they hear as each button is pressed?

A study recently published in the journal PLOS One answers just that. "Comprehension should come before production," says Federico Rossano, a cognitive scientist at the University of California, San Diego and the lead author of the paper. "It's the same with kids: First, they understand what you mean by ball and milk; and then, they ask for it." This initial, small study of about 60 dogs found that, yes, dogs seem to understand words like "play" and "outside" — regardless of whether those words are spoken by their owner or triggered by a button. Importantly, the dogs did not have any context clues — like humans' body language or props — as they were tested and processed the words even if their owner wasn't present.

"(ア)The fact that they can understand any language at all is incredible to me. It's like a testament to their attention, capacity and flexibility as cognitive creatures because they don't have anything like that in their natural system," says Alexandra Horowitz, a professor of animal cognition at Barnard College. Horowitz did not work on the study.

But what about the idea that Bunny and other animals are actively communicating back to their owners through buttons? Are they really able to speak back? Rossano and his team are tackling that question next. Now that they've proven the pets can understand the words they're hearing in the first place, the researchers are working on a massive community science project. It includes roughly ten thousand dogs and seven hundred cats — plus, some horses, goats and pigs. One can only hope that this line of research may one day get us closer to answering the question: Do our pets want to converse with us or (イ)are they only ever using us as a vending machine? Or, if you're like Horowitz, you're curious about future research into how dogs communicate through smells, not words.

(1)

Which of the following is the reason why Bunny's video became famous?

1. Because it sounded like Bunny said words like "ouch" and "paw."
2. Because Bunny noticed her owner's injuries and showed concern.
3. Because Bunny injured her paw with a button on a soundboard on the ground.
4. Because Bunny appeared to have signaled the pain in her paw by pushing buttons.

(2)

Which of the following are the findings in the PLOS One paper presented in this article?

1. Dogs prefer to communicate with children.
2. Dogs seem to understand the words they hear.
3. Dogs cannot process words unless their owners are present.
4. Body language is necessary for communicating with dogs.

(3)

Please translate the underlined part (ア) into Japanese.

(4)

Which of the following would be most appropriate if you were to rephrase the underlined part (イ)?

1. do our pets want to avoid communicating with humans?
2. do our pets feel that they are being treated mechanically by humans?
3. do our pets simply utilize humans as a convenient means to obtain food?
4. do our pets think of humans as reliable because they have 24/7 accesses?

## 問題 2

次の英文の内容に関して、(1) から (4) までの質問に対して解答用紙の所定欄に記述しなさい。

### Scientists win Ig Nobel for discovering anal breathing in mammals

A research team of Japanese and American scientists won the Ig Nobel Prize in physiology Thursday for discovering that mammals are capable of breathing through their anuses, which they hope will help treat people with COVID-19 and other respiratory diseases. (A) The award for the team-of-11’s study, published in the journal Med in 2021, marks the 18th consecutive year that Japanese nationals have claimed the humorous prize, which is presented by the U.S. scientific magazine Annals of Improbable Research at the Massachusetts Institute of Technology. “First and foremost, thank you for believing (in) the potential of anus,” Takanori Takebe, a professor at Tokyo Medical and Dental University who was one of the researchers, said in English. The Ig Nobel prize is an award given to “achievements so surprising that they make people laugh, then think,” and has several categories, including for peace, botany and medicine. The winning team in physiology found that administering oxygenated liquid through the rectum into the intestines of pigs, rats and mice with respiratory diseases helped alleviate symptoms, which inspired a new treatment method for artificial respiration in humans. (B) The treatment “may serve as a transformative approach to respiratory failure patients” infected with COVID-19 and other infectious diseases, the researchers said in the medical journal. In June, EVA Therapeutics, founded by Takebe, began clinical trials to confirm its safety with the aim of commercializing it in 2028 in Japan and 2030 in the U.S. Takebe said loaches, which can breathe through their intestines in low-oxygen environments, inspired his team and him to study whether mammals could do the same. His team wore loach hats when accepting their prize. “In Japan, we have a very interesting creature called loaches that has a capacity to suck up oxygen from the butt. So, why we can’t do that? So, that was the question we started,” Takebe said. Patients with respiratory failure are normally treated with ventilators and extracorporeal membrane oxygenation, or ECMO. But they are physically straining for the patients and difficult to handle for medical staff. The treatment can also be used for extremely premature infants, Takebe said, adding that he hopes people will be made aware of the technology through the award.

- (1) 下線部 (A) を日本語訳しなさい。
- (2) イグ・ノーベル賞はどのような賞で、どのような部門があるか述べなさい。
- (3) 下線部 (B) を日本語訳しなさい。
- (4) この研究のきっかけになった疑問について研究者はどのように答えているか述べなさい。

